

REMARKS

Claims 25-42, 47, 48, 51 and 52 are currently pending in the application. These claims are currently being rejected as reciting subject matter that is considered to be obvious in view of the disclosures of the U.S. Patent of Toth et al. No. 6,616,683 and the U.S. Patent of Specht et al. No. 4,938,214. This is a new grounds of rejecting the claims, following a panel decision to reopen prosecution from a Pre-Appeal Brief Review of a previous final rejection of the application claims.

Of the claims pending in the application, claims 25, 47 and 51 are the only independent claims. Each of these independent claims is directed to a microsurgical instrument that is constructed in an extremely small scale for use in microsurgery. Microsurgical instruments are employed in performing surgical operations on extremely small and extremely delicate parts of the human anatomy, for example, the tissue inside the human eye. It is necessary that the scale of these instruments be as small as possible so that the introduction of an instrument to a surgical site is minimally invasive.

The applicants have discovered that a microsurgical instrument having a serrated operative microsurgical surface can be created by using electric discharge machining (EDM) to make the extremely small serrations on the operative surfaces of the instrument. In the preferred embodiment of the invention, each serration on an operative surface of the invention has adjacent peaks and a width dimension between the adjacent peaks that is smaller than 0.007 of an inch, the smallest serration known by the applicants that can be formed by the conventional grinding process. In addition, the applicants have discovered that no further machining of the extremely small serrations (for example grinding the serrations) would be needed after the operative microsurgical surfaces were formed by EDM alone. These discoveries of the applicants are not disclosed or made obvious by the prior art references of record in the application.

Each of the independent claims 25, 47, and 51 pending in the application recites a microsurgical instrument comprising first and second operative microsurgical surfaces that are manually movable toward and away from each other, where at least one of the operative microsurgical surfaces has a series of serrations and each serration has adjacent peaks and a width dimension between the adjacent peaks that is smaller than 0.007 of an inch.

In the final rejection of the claims, it is contended that the Toth reference discloses a microsurgical instrument having a distal end with a slot in the distal end that forms a pair of resilient spring arms having opposed microsurgical surfaces on the spring arms. It is further contended that the slot, the pair of spring arms, and the pair of operative microsurgical surfaces are formed by electric discharge machining in a single piece of material, as is recited in the rejected independent claims.

The above interpretation of the Toth reference is incorrect. The reference does not disclose or suggest operative microsurgical surfaces that are formed solely by electric discharge machining. This interpretation of the reference is based on hindsight of the present invention. The reference discloses cutting a slot in the distal end of a tubular member to form forcep jaws 14-2 that have arcuate cross-sections (column 3, lines 8-11). The forcep jaws 14-2 are further bent in a V-shape that provides a seat on each jaw for a filler material 14-4 which forms the gripping surface of the forcep jaw (see column 3, lines 11-16). It is the filler material 14-4 that provides the operative surface of the forceps in the Toth reference. The reference includes one sentence that states the filler material may be omitted from the forcep jaws 14-2 (column 4, lines 26-27). However, the reference does not appear to include any statement that the pair of operative microsurgical surfaces of the forceps are formed by electric discharge machining as contended in the rejection of the claims. Because the reference does not disclose this claimed feature as contended in the rejection, the reference does not make obvious the subject matter of the independent claims either alone or combined with the Specht reference.

Furthermore, the Toth reference fails to provide any disclosure or suggestion of serrations on an operative surface of a microsurgical instrument where each serration has adjacent peaks with a width dimension between the adjacent peaks that is smaller than 0.007 of an inch as recited in the three independent claims 25, 47, and 51. For this additional reason, the Toth reference does not make obvious the subject matter of the independent claims either alone or in combination with the Specht reference.

The above shortcomings of the Toth reference are at least in part acknowledged in the rejection of the claims where it is said the Toth reference does not disclose operative microsurgical surfaces comprising serrations. The Specht reference is relied on for such a disclosure. However, the Specht reference does not disclose serrations on an operative surface of a microsurgical surface where each serration has adjacent peaks with a width dimension between the adjacent peaks that is smaller than 0.007 of an inch as recited in independent claims 25, 47, and 51. This critical feature of the invention that was discovered by the applicants to be achievable by forming the serrations in the operative surfaces of the microsurgical instrument solely by electric discharge machining is not suggested or made obvious by either of the prior art references relied on in rejecting the claims. The claims of the application do not seek to patent a microsurgical instrument having serrations on the opposed operative surfaces of the instrument. The claims of the application are directed to the novel and non-obvious discovery that operative microsurgical surfaces of a microsurgical instrument can be formed by electric discharge machining (EDM) to have serrations where each serration has adjacent peaks with a width dimension between the adjacent peaks that is smaller than 0.007 of an inch. This discovery of the applicants is not made obvious by the combined disclosures of the Toth and Specht references, and therefore claim 25 and its dependent claims 26-42, claim 47 and its dependent claim 48, and claim 51 and its dependent claim 52 are all allowable over the prior art.

In the rejection of the claims, the argument is presented that it would be obvious to form serrations such that the width between adjacent peaks of the serrations was within a range of 0.0015 to 0.0039 of an inch, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering optimum or working ranges involves only routine skill in the art. *In Re Aller*, 105 U.S.P.Q. 233 was relied on for this contention. However, the holding of *In Re Aller* is taken out of context in the rejection.

MPEP § 2144.05 addresses the issue of obviousness of ranges. Part II, A of this MPEP section deals with optimization within prior art conditions. There *In Re Aller* is cited as supporting the contention that where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.

This is not the case in the claimed subject matter of the invention. The applicants have discovered how to create serrations in the working surfaces of microsurgical instruments that are smaller than those previously capable of being constructed by the conventional grinding process. The claims are not directed to the optimum size of serrations within a known range of serration sizes. Therefore, *In Re Aller* is not pertinent to the claimed subject matter of the invention claimed. The claims recite serrations having adjacent peaks with a width dimension between the adjacent peaks that is smaller than 0.007 of an inch. This small dimension claimed is outside of the known range of serration dimensions possible by grinding. Therefore, *In Re Aller* provides no support for the contention that the subject matter of the claims of the invention is obvious in view of the combined disclosures of the Toth and Specht references.

For all the reasons discussed above, it is respectfully submitted that claims 25-42, 47, 48, 51, and 52 currently pending in the application are allowable over the prior art.

In the rejection of dependent claims 28, 48, and 52, MPEP § 2113 is cited for the contention that product-by-process limitations are not limited to the manipulations of the recited steps, only to the structure implied by the steps. Once a product appearing to be substantially

the same or similar is found, a 35 U.S.C. § 102/103 rejection may be made and the burden is shifted to the applicant to show an unobvious difference.

Dependent claims 28, 48, and 52 do not refer to manipulations of steps. These claims recite specific structure of the microsurgical instrument operative surfaces. Claim 28 refers to the serrations being wire electric discharge machined surfaces. This is describing a condition of these surfaces, and does not describe a method step of making the surfaces. The wire electric discharge machined surface referred to in the claim is different and not obvious from the prior art surfaces of instruments that have been formed by grinding.

Claim 48 refers to the opposed serrated surfaces having been formed solely by electric discharge machining. This is a description of how the surfaces had been formed, not a description of method steps of forming the surfaces. Again, surfaces formed solely by electric discharge machining are different and not obvious from surfaces formed by grinding.

Claim 52 recites substantially the same subject matter of claim 48 where it defines the serrated edges having been formed solely by electric discharge machining. Again, this claim is not describing method steps, but is describing how the serrated edges had been formed. Serrated edges formed by electric discharge machining are different and not obvious from edges formed by grinding.

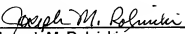
For all the reasons discussed above, it is submitted that the dependent claims 28, 48, and 52 recite structural features of the invention that are not obvious from the prior art method of grinding operative surfaces of microsurgical instruments.

It is respectfully submitted that the subject matter of the invention recited in independent claim 25 and its dependent claims 26-42, the subject matter of the invention recited in independent claim 47 and its dependent claim 48, and the subject matter of the invention recited in independent claim 51 and its dependent claim 52 is not made obvious by the combined disclosures of the Toth and Specht references. In view of the amendments and remarks

presented herein, the application is in condition for allowance and a favorable action is requested.

Respectfully submitted,

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